

[Extracts from the Proceedings of the Academy of Natural Sciences of Philadelphia, of papers,
by ISAAC LEA. Read April 1st, 1856.]

Mr. Lea read some notes from a paper he is preparing for the Journal of the Academy on the New Red Sandstone Formation of Pennsylvania, and stated that he had, during an excursion last summer, found in the dark shales of that Formation, near Phoenixville, on the Schuylkill, the tooth of a Sauroid Reptile, which he thus characterised.

CENTEMODON SULCATUS.* Tooth smooth, rather thick, slightly curved, with trenchant edges, rounded on the exterior portion, sulcate on the lower part near the base, covered with very minute distinct striae from the point to the base, which striae cross the sulcations in slightly oblique lines. Length sixteen-twentieths of an inch, greatest breadth four twentieths of an inch; pulp cavity large.

On comparing this tooth with *Clepsysaurus Pennsylvanicus*, which he had described from the same Red Sandstone Formation in Lehigh county, it will be found to differ very widely. The edge is not serrate on any part like that genus, nor is it so large or so attenuate. The form, too, is more compressed. It differs from the teeth of *Bathygnathus borealis*, Leidy, from the New Red Sandstone of Nova Scotia, in size, being smaller and being more attenuate, as well as in having a trenchant smooth edge and not a serrate edge. It is about the size and approaches the form of Prof. Owen's figure of *Labyrinthodon*, plate 63, A. f. 2, of *Odontographia*, but it is more flattened.

Mr. Lea also stated that in the greenish and blackish shales of the same locality he found two species of *Posidonia*, which genus is so characteristic of this portion of the formation and existing in immense quantities. As they seem to differ from that figured by Sir Charles Lyell, in his *Elementary Geology*, as coming from the Oolitic coal shale of Richmond, Virginia, Mr. Lea proposed the names of *P. ovata* and *P. parva*, the first being about seven-twentieths of an inch in transverse diameter. The latter is more rotund, and about three-twentieths of an inch in transverse diameter, both being covered with numerous minute concentric costæ over the whole disc.

Near to this locality and superimposed, Mr. Lea obtained a specimen of impure dull red limestone, which contained, on a partially decomposed surface, impressions presenting the appearance of *Foot-marks*, somewhat like *Chelichnus Duncani*, Owen, figured by Sir Wm. Jardine in his *Ichnology*, for which Mr. Lea proposed the provisional name of *Chelichnus Wymanianus*, after Professor Wyman, of Cambridge, Mass.

From the same formation and locality were procured the impressions of plants,

* *Kérthma aculeus* and *idem* dens.

some of which belong to the *Conifera*. One of the cones was nearly six inches long and full an inch wide. These were accompanied by other plants of very obscure character, covering large portions of the surface of some of the layers. Mr. Lea also mentioned that he had observed the same Red, Black and Gray Shales at Gwynedd, on the North Pennsylvania Railroad, where he found the same *Posidonia*, and some of the same obscure plants, impressions of which covered the surfaces of many of the rocks. A single specimen was obtained of a plant with long leaves somewhat resembling *Noeggerathia cuneifolia*, Brogniart, which is from the Permian.

In the Black *Posidonia* Shales was found a single 'Ganoid' scale, which is more like *Pygopterus mandibularis*, Agas., from the Marl Slate (Lower Permian) than any other which had come under Mr. Lea's notice. There were other obscure forms observed, which have not yet been satisfactorily found to be analogous to any known forms, but which Mr. Lea hoped to be able to make out when he should figure all the specimens and describe them more at large for the Journal of the Academy.

Description of a New Sub-Genus of NAÏADES.

By ISAAC LEA.

Family NAÏADES.

Sub-genus PLAGIODON.*

Testa æquivalvis, inæquilatera, obliquè trigona, valdè inflata; dentibus cardinalibus crenulatis, compressis, transversis, curtis, in utraquè valva duplicis; dentibus lateralibus nullius; ligamentum vix extrorsum; impressio muscularis antica composita.

This sub-genus is proposed for a fluviatile shell, which is nearer to *Monocondylaea*, D'Orbigny, than to *Margaritana*, Schumacher; and may be considered properly so interposed as a link to connect them.

PLAGIODON ISOCARDIODES.

Testa lævi, rotundo-trigonâ, globosâ, ventricosissimâ, ad lateris planulatis, valdè inquilateralis, anticè brevissimâ, umberibus tumidis, valvulis subtenubus; natibus valdè elevatis, incurvis, terminalis; epidermide subrugosâ, tenebrosa-olivaceâ; dentibus cardinalibus crenulatis, compressis, transversis, curtis, in utraquè valvâ duplicis; margaritâ albâ et iridescente.

Hab. Rio Plata. Mr. E. Verreau, Paris.

* Πλαγιός, transversus and ὁδεύς, dens.

Description of a New Species of TRIQUETRA, Klein (HYRIA, Lamarch.)

By ISAAC LEA.

TRIQUETRA LANCEOLATA.

Testā lāevi, transversissimā, subcompressā, lanceolatā, valdē inequilaterali, posticē acuto-angulatā: anticē caudatim producta; valvulis crassis; natibus parvis, prominulis, ad quartam anteriorem partem positis; epidermide striatā, tenebroso-fuscā; dentibus cardinalibus subgrandibus crenulatisque; lateralibus praelongis rectisque; margaritā albā et argenteā.

Hab. China? Mr. Asa Fitch.

Description of New Fresh water Shells from California.

By ISAAC LEA.

Family LYMNÆANA.

Genus POMPHOLYX.

Testa rotundo-gibbosa, subitus retrorsa, superne planulata, non umbilioata; spira deppressa, apertura amplissima, subrotunda, effusa; labro acuto; labio incrassato, planulato; operculum nullum.

POMPHOLYX EFFUSA. Testa parvā, striatā, rotundo-gibbosā, subtenui, effusā, luteo-corneā; anfractibus trinis, supernē planulatis, infernē convexis; aperturā subrotundā, dilatatā, intus albidā, maculatā.

Hab. Sacramento River, California. Dr. Trask.

MELANIA SHASTAENSIS. Testa striatā, subcylindraceā, subtenui, tenebroso-corneā, fasciatā; spirā elevatā ad apice plicatā; suturis valdē impressis; anfractibus convexis; aperturā parvā, ovatā, intus albidā; columellā lāevi, incurvata et recurvata.

Hab. Shasta and Scott Rivers, California. Dr. Trask.

MELANIA NIGRINA. Testa lāevi, parvā, conicā, subtenui, nigranti, politā; spirā subelevatā; suturis impressis; anfractibus regulariter convexis; aperturā parvā, ovatā, supernē angulatā, intus tenebroso-purpureā; columellā incurvā, purpureā.

Hab. Clear Creek, Shasta County, California. Dr. Trask.

PHYSA TRITICEA. Testa subfusiformi, pellucidā, politā, rufo-castaneā; spirā brevi, subacutā; suturis subimpressis; anfractibus quaternis, subconstrictis; aperturā elongatā, intus lineatā.

Hab. Shasta County, California. Dr. Trask.

PLANORBIS TRASKII. Testa magnā, tenebroso-corneā, subcylindraceā, minutē, crebrē et regulariter striatā, supernē latē et profunditer umbilicatā; infernē

magis excavatî; anfractibus quinis, supernè acutè carinatâ ad peripheriam, infernè obtusè carinatâ; aperturâ auriculæformi.

Hab. Kern Lake, Tulan County, California. Dr. Trask.

LYMNÆA PROXIMA. Testâ acuto-conicâ, subtenui, crebrè et irregulariter striatâ, corneâ, minutè perforatâ; spirâ subelevatâ, ad apicem acuminatâ; suturis valde impressis; anfractibus septenis, convexis; aperturâ subinflatâ, subellipticâ, intus fasciatâ, columellâ paulo plicatâ.

Hab. Arroya San Antonio, California. Dr. Trask.

ANCYLUS PATELLOIDES. Testâ magnâ, crassâ, ellipticâ, maculatâ, oblique conicâ; striis crebris, minutis; apice submediali.

Hab. Sacramento River, California. Dr. Trask.

The following species, heretofore described, were part of the "envoi" made by Dr. Trask.

Margaritana margaritifera, Lea.

Alas. falcata, Gould.

Alas. Yubænsis, Trask.

From Klamath and Yuba Rivers.

I received specimens of this shell from Prof. Nuttall in 1837, brought by him from Columbia River. I thought then, and I still think, there were not characters sufficiently distinct in them to form a new species. The observations published at the time (Tran. Am. Phil. Soc. v. 6, p. 97) are still in accordance with my opinions, after having had many specimens from various localities under examination. The purple in the nacre is stronger than any I have seen from other localities, but this with the other differences would not I think warrant its being considered more than a mere variety of *M. margaritifera*.

Anodonta Wahlamatensis, Lea. Tr. Am. P. S. v. 6, p. 78. = *A. triangulata*, Trask. *A. rotundovata*, Trask. From Sacramento River.

, *Anodonta angulata*, Lea. Tr. Am. P. S. v. 6, p. 97. = *A. feminalis*, Gould. *A. Randalli*, Trask. From upper San Joaquin.

Helix Oregonensis, Lea. Trans. Am. P. S. v. 6, p. 100. Point Cypress, Monterey County.

Helix Nickliniana, Lea. Trans. Am. P. S. v. 6, p. 100. Tomales Bay and Deadman's Island.

Helix Californiensis, Lea. Trans. Am. P. S. v. 6, p. 99. Point Cypress, Monterey County.

Lymanæa exigua, Lea. Trans. Am. P. S. v. 9, obs. v. 3. San Antonio Arroya.

Lymanæa pallida, Adams. Journal Boston Nat. Hist. Soc. v. 3. San Antonio Arroya.

Physa heterostropha, Say. Nicholson's Ency. Am. Edition. Los Angeles.

Melania occata, Hinds. Voy. of the Sulphur, pl. 15, f. 5. Sacramento River.

Melania seminalis, (*Paludina*, Hinds.) Voy. Sulphur, pl. 16, fig. 22. Sacramento River.

Planorbis trivolis, Say. Nicholson's Ency. Am. Ed. Hern Lake. Slightly varies from the Michigan specimens.

Planorbis ammon, Gould. Proc. Boston Soc. Nat. Hist. v. 5, p. 129. Lagoons, Sacramento Valley.

Description of Twenty-five New Species of Exotic UNIONES.

By ISAAC LEA.

[Read April 15th, 1856.]

UNIO HAINESIANUS. Testā alatā, lævi, subrotundatā, subinflatā, valdè inæquilaterali, valvulis crassis; natibus prominentibus, angulatis; epidermide luteo-fuscā; dentibus cardinalibus crassis, crenulatis elevatisque; lateralibus longis, erassis subcurvisque; margaritā albā et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO MYERSIANUS. Testā bialatā, lævi, triangulari, subcompressā, inæquilaterali, posticē angulatā; valvulis crassis; natibus prominulis epidermide tenebroso-fuscā; dentibus cardinalibus longis crenulatisque; lateralibus prælongis, lamellatis subcurvisque; margaritā colore salmonis tinctā.

Hab. Siam. S. R. House, M. D.

UNIO HOUSEI. Testā bialatā, lævi, triangulari, compressā, valdè inæquilaterali, posticē obtusè angulatā, valvulis subcrassis; natibus prominulis; epidermide fuscā; dentibus cardinalibus lamellatis; lateralibus prælongis, lamellatis subcurvisque; margaritā colore salmonis tinctā.

Hab. Siam. S. R. House, M. D.

UNIO GRAVIDUS. Testā alatā, lævi, triangulari, valdè inflatā, valdè inæquilaterali; valvulis tehuibus; natibus elevatis, tumidis; epidermide luteā, nitidā; dentibus cardinalibus prælongis, valdè lamellatis; lateralibus longis, lamellatis subcurvisque; margaritā cæruleo-albā et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO INORNATUS. Testā lævi, ellipticā, inflatā, subæquilaterali, posticē subangulatā; valvulis sub-pellucidis tenuibusque; natibus subprominentibus; epidermide olivaceā, substriatā; dentibus cardinalibus longis lamellatisque; lateralibus longis rectis lamellatisque; margaritā cæruleo-albā et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO LUTENS. Testā lævi, ellipticā, inflatā, subæquilaterali, posticē obtusè angulatā; valvulis crassis; natibus subprominentibus; epidermide luteā, politā;

dentibus cardinalibus crassis brevisque; lateralibus brevis, subcrassis subrectisque; margaritâ albâ et iridescente.

Hab. Newville Burmah. Mrs. Vinton.

UNIO EXIMIUS. Testâ alatâ, plicatâ, obovatâ, compressâ, valdè inaequilaterali, posticè rotundatâ; valvulis tenuissimis; natibus prominulis; epidermide virido-luteâ, obsoletè radiatâ; dentibus cardinalibus lamellatis tenuibusque; lateralibus longis, lamellatis subcurvisque; margaritâ cæruleo-albâ et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO TUMIDULUS. Testâ lævi, obliquâ, inflatâ, posticè angulatâ, valdè inaequilaterali; valvulis subcrassis; natibus prominentibus; epidermide tenebroso-olivaceâ, striatâ; dentibus cardinalibus longis lamellatisque; lateralibus prælongis subcurvisque; margaritâ albâ et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO RUSTICUS. Testâ tuberculatâ, ellipticâ, inflatâ, inaequilaterali, posticè subangulatâ; valvulis subcrassis; natibus subprominentibus; epidermide olivaceâ, substriatâ; dentibus cardinalibus longis lamellatisque; lateralibus longis, lamellatis subrectisque; margaritâ albâ et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO SAGITTARIUS. Testâ lævi, valdè transversâ, valdè inaequilaterali, subinflatâ, subcylindrâcâ, posticè acuto-angulatâ; valvulis subtenuibus; natibus vix prominentibus; epidermide virido-olivaceâ, striatâ; dentibus cardinalibus longis, rectis lamellatisque; lateralibus prælongis subrectisque; margaritâ albâ et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO SUBSTRIATUS. Testâ lævi, ellipticâ, subinflatâ, subæquilaterali; posticè angulatâ, anticè rotundatâ; valvulis crassiusculis; natibus subprominentibus granulatisque; epidermide olivaceâ, eradiatâ et rugoso-striatâ; dentibus cardinalibus longis, rectis lamellatisque; lateralibus longis, rectis lamellatisque; margaritâ argenteâ et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO SCOBINATUS. Testâ plicatâ, transversâ, in medio compressâ, valdè inaequilaterali, posticè angulatâ, ad basim emarginatâ; valvulis subcrassis; natibus parvis, prominulis, ad apicem undulatis; epidermide viridi et luteâ, minutè striatâ; dentibus cardinalibus obliquis, compressis; lateralibus prælongis, in uterque valvis duplicitis subrectisque; margaritâ albâ et iridescente.

Hab. Siam. T. R. Ingalls, M. D., S. R. House, M. D.

UNIO HUMILIS. Testâ plicatâ, transversâ, subinflatâ, subæquilaterali, subcylindrâcâ, posticè biangulatâ; valvulis tenuibus, pellucidis; natibus prominulis, perplicatis; epidermide virido-luteâ, striatâ; dentibus cardinalibus lamellatis

rectisque; lateralibus longis lamellatisque; margaritā cāeruleo-albā et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO PHASELUS. Testā plicatā, transversā, inflatā, subemarginatā, valdē inaequilaterali, posticē obtusē angulatā; valvulis crassis; natibus parvis, prominulis, ad apicem undulatis; epidermide viridi et luteā, politā; dentibus cardinalibus brevis subcassisque; lateralibus praelongis, duplicitis in uterque valvis subcurvisque; margaritā albā et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO VERREAUIANUS. Testā sulcatā, oblongā, inflatā, subemarginatā, subaequilaterali, posticē obtusē angulatā; valvulis crassis; natibus parvis, subprominentibus undulatisque; epidermidē luteo-bruneā, striatā; dentibus cardinalibus magnis, obliquis, compressis crenulatisque; lateralibus longis, rectis lamellatisque; margaritā salmonis colore tinctā et iridescente.

Hab. Cape of Good Hope. Mr. E. Verreau.

UNIO AFRICANUS. Testā lāvi, ellipticā, subcompressā, subemarginatā, valdē inaequilaterali, posticē obtusē angulatā; valvulis subtenuibus; natibus parvis, prominulis undulatisque; epidermide luteo-olivaceā et politā; dentibus cardinalibus parvis, obliquis, compressis sublamellatisque; lateralibus praelongis subrectisque; margaritā salmonis colore tinctā et valdē iridescente.

Hab. Cape of Good Hope. Mr. E. Verreau.

UNIO SHURTLEFFIANUS. Testā minutē plicatā, ellipticā, inaequilaterali, subcylindraceā, posticē obtusē angulatā, anticē rotundatā, ad latus subplanulatā; valvulis subcassis; natibus prominulis, ad apices minutē undulatis; epidermide virido-luteā; dentibus cardinalibus sublongis, compressis geminisque; lateralibus longis subrectisque; margaritā salmonis colore tinctā et iridescente.

Hab. Sina River, India, Major Le Conte. Ahmednugger, India. S. Shurtleff, M. D.

UNIO EFFULGENS. Testā sulcatā, ellipticā, subinflatā, inaequilaterali, posticē obtusē angulatā; valvulis subcassis; natibus prominulis; epidermide tenebroso-fuscā, politā; dentibus cardinalibus parvis crenulatisque; lateralibus longis curvisque; margaritā cāeruleo-albā.

Hab. Brazil. B. W. Budd, M. D.

UNIO DUNKERIANUS. Testā plicatā, transversā, subinflatā, valdē inaequilaterali, posticē obtusē angulatā; valvulis subtenuibus; natibus prominulis, costis divarioatis; epidermide tenebroso-fuscā politāque; dentibus cardinalibus longis compressisque; lateralibus praelongis, lamellatis rectisque; margaritā cāeruleo-albā et valdē iridescente.

Hab. River Macacóu, Rio de Janeiro, Brazil, Prof. Dünker. New Grenada, Mr. E. Verreau.

UNIO SHUTTLEWORTHII. Testā sulcatā, oblongā, transversā, valdē inaequilaterali, subcompressā, posticē obtusē biangulatā, ad latus planulatā; valvulis subcrassis; natibus prominulis; epidermide bruneo-nigricante; dentibus cardinalibus parvis; lateralibus longis subcurvisque; margaritā purpureā et iridescente.

Hab. Australia. R. J. Shuttleworth, Esq. Berne, Switzerland.

UNIO NUCLEUS. Testā plicatā, quadratā, inflatā, subaequilaterali, postice angulatā; valvulis crassis; natibus prominentibus, peruplicatis; epidermide virido-fuscā, minutissimē perstriatā; dentibus cardinalibus crassis brevisque; lateralibus crassis, brevis, duplicis in uterque valvis subcurvisque; margaritā cæruleo-albā et iridescente.

Hab. Siam. S. R. House, M. D.

UNIO WHEATLEYANUS. Testā lævi, ellipticā, inflatā, inaequilaterali; valvulis crassis; natibus prominulis, costis elevatis, epidermide tenebroso-olivā, rugoso-striatā; dentibus cardinalibus magnis, crassiusculis, subdivisis; lateralibus longis crassisque; margaritā vel albā vel carneā et iridescente.

Hab. Rio Plata, M. A. D'Orbigny. Rio Negro. C. M. Wheatley, Esq.

UNIO BROWNII. Testā lævi, obovatā, valde compressā, valde inaequilaterali; valvulis subcrassis; natibus prominulis, costis divaricatis; epidermide tenebroso-viridi, striatā; dentibus cardinalibus submagnis, in utraque valvis duplicis; lateralibus lamellatis, sublongis curvisque; margaritā albā.

Hab. Mocha? Asia. Capt. George Brown.

UNIO SUAVIDICUS. Testā lævi, oblongā, subcompressā, valdē inaequilaterali, anticē rotundatā, posticē truncatā, natibus subprominentibus, costis elevatis; epidermide luteo-olivā, minutē striatā; dentibus cardinalibus parvis, compressis, crenulatis, in utraque valvis duplicis, lateralibus longis, lamellatis subrectisque; margaritā cæruleo-albā et iridescente.

Hab. River Amazon. Mr. E. Verreaux, Paris.

UNIO UMBROSUS. Testā lævi, ellipticā, subinflatā, inaequilaterali; valvulis subcrassis; natibus prominulis; epidermide castaneā, politā, transversē fasciatā; dentibus cardinalibus magnis, subelevatis; lateralibus longis, lamellatis subcurvisque; margaritā vel purpureā vel roseā et iridescente.

Hab. Medellin River, Mexico. M. Burrough, M. D.